

## **PUBLICATIONS**

### **Thesis**

#### **M.S. 1984**

MS Mechanical and Aerospace Engineering, Case-Western Reserve University,  
January 1998  
Title: Stochastic Simulation of Tensile Failure in Unidirectional Ductile Matrix  
Composites

### **Journal**

#### **2003**

1. Bonacuse, P. J. and Kalluri, S., "Cyclic Deformation Behavior of Haynes 188 Superalloy Under Axial-Torsional, Thermomechanical Loading," Thermomechanical Fatigue Behavior of Materials: 4th Volume, ASTM STP 1428, M. A. McGaw, S. Kalluri, J. Bressers, and S. D. Peteves, Eds., American Society for Testing and Materials, West Conshohocken, PA, 2003

#### **2001**

2. Laumakis, Paul J. and Bonacuse, Peter J., "Monte-Carlo simulation and the chain-of-bundles model for titanium-matrix composite materials," Journal of Composite Materials 35 (20), pp. 1795-1814, 2001.

#### **2000**

3. Kalluri, Sreeramesh and Bonacuse, Peter J., "Cumulative Axial and Torsional Fatigue: An Investigation of Load-Type Sequencing Effects," Multiaxial Fatigue and Deformation: Testing and Prediction, ASTM STP 1387, S. Kalluri and P. J. Bonacuse, Eds., American Society for Testing and Materials, West Conshohocken, PA, 2000, pp.281-301
4. Gabb, T. P., Bonacuse, P. J., Ghosn, L. J., Sweeney, J. W., Chatterjee, A., and Green, K. A., "Assessments of Low Cycle Fatigue Behavior of Powder Metallurgy Alloy U720," Fatigue and Fracture Mechanics: 31st Volume, ASTM STP 1389, G. R. Halford and J. P. Gallagher, Eds., American Society for Testing and Materials, West Conshohocken, PA, 2000, pp. 110-127

#### **1997**

5. S. Kalluri and P. Bonacuse, "An Axial-Torsional, Thermomechanical Fatigue Testing Technique," in Multiaxial Fatigue and Deformation Testing Techniques, ASTM STP-1280, S. Kalluri and P. J. Bonacuse, Eds., 1997, ASTM, West Conshohocken, Pa.

#### **1996**

6. D. A. Gasparini, P. Bonacuse, L. Powers, and A. Romero, "Stochastic Parallel-Brittle Networks for Modeling Materials," Journal of Engineering Mechanics, Vol. 22, No. 2, Feb. 1996, pp. 130-137.

## **1995**

7. Peter J. Bonacuse and Sreeramesh Kalluri, "Elevated Temperature Axial and Torsional Fatigue Behavior of Haynes 188," *Journal of Engineering Materials and Technology*, Vol. 117, No. 2, April 1995, pp. 191-195.

## **1994**

8. Bonacuse, P. J., "A Rule Based System for Estimating High Temperature Fatigue Life," *Automation in Fatigue and Fracture: Testing and Analysis*, ASTM STP-1231, C. Amzallag, Ed., American Society for Testing and Materials, Philadelphia, 1994, pp. 466-476.
9. Bonacuse, P. J. and Kalluri, S., "Cyclic Axial-Torsional Deformation Behavior of a Cobalt-Base Superalloy," *Cyclic Deformation, Fracture, and Nondestructive Evaluation of Advanced Materials: Second Volume*, ASTM STP-1184, M.R. Mitchell and O. Buck, Eds., American Society of Testing and Materials, Philadelphia, PA, 1994, pp. 204-229.

## **1993**

10. Bonacuse, P. J. and Kalluri, S., "Axial-Torsional Fatigue: A Study of Tubular Specimen Thickness Effects," *Journal of Testing and Evaluation*, JETVA, Vol. 21, No. 3, May 1993, pp. 160-167.
11. Kalluri, S. and Bonacuse, P. J., "In-Phase and Out-of-Phase Axial-Torsional Fatigue Behavior of Haynes 188 at 760°C," *Advances in Multiaxial Fatigue*, ASTM STP-1191, D. L. McDowell and R. Ellis, eds., American Society of Testing and Materials, Philadelphia, 1993, pp. 133-150.

## **1990**

12. Kalluri, S. and Bonacuse, P. J., "A Data Acquisition and Control Program for Axial-Torsional Fatigue Testing," *Applications of Automation Technology to Fatigue and Fracture Testing*, ASTM STP 1092, A. A. Braun, N. E. Ashbaugh, and F. M. Smith, Eds., American Society for Testing and Materials, Philadelphia, 1990, pp. 269-287.
13. McGaw, M. A. and Bonacuse, P. J., "Automation Software for a Materials Testing Laboratory," *Applications of Automation Technology to Fatigue and Fracture Testing*, ASTM STP 1092, A. A. Braun, N. E. Ashbaugh, and F. M. Smith, Eds., American Society for Testing and Materials, Philadelphia, 1990, pp. 211-231.

## **NASA Technical Reports**

### **2004**

1. NASA Engineering and Safety Center Independent Technical Assessment (ITA) Report, "Independent Technical Assessment of the Orbiter LH2 Feedline Flowliner Cracking Problem," RP-04-11/04-004-E, 20 July, 2004

### **2002**

2. Gabb, T. P.; Telesman, J.; Kantzos, P. T.; Bonacuse, P. J.; and Barrie, R. L., "Initial Assessment of the Effects of Nonmetallic Inclusions on Fatigue Life of Powder-Metallurgy-Processed Udimet(TM) 720," NASA TM-2002-211571

## **2000**

3. Gabb, Timothy P.; Bonacuse, Peter J.; Ghosn, Louis J.; Sweeney, Joseph W.; Chatterjee, Amit; and Green, Kenneth A., "Assessment of Low Cycle Fatigue Behavior of Powder Metallurgy Alloy U720," NASA TM-2000-209418, June 2000.

## **1998**

4. P. J. Bonacuse, L. J. Ghosn, J. Telesman, A. M. Calomino, and P. Kantzos, "Simulation of Crack Propagation In Engine Rotating Components Under Variable Amplitude Loading," NASA TM-1998-208648, ARL-MR-418, Oct. 1998.

## **1995**

5. Kalluri, Sreeramesh; Bonacuse, Peter J., "An Axial-Torsional, Thermomechanical Fatigue Testing Technique," NASA-TM-107199; E-10119; NAS 1.15:107199; ARL-TR-1060; Symposium on Multiaxial Fatigue and Deformation Testing Techniques, Denver, CO, 15 May 1995; May 1995

## **1994**

6. Hutson, D. E., Bonacuse, P. J., Bhansali, K., and Stinnett, E. W., "Life Management of Critical Components of the T700 Engine," US ATCOM Technical Report # EPT 94.01, 4 March, 1994

## **1992**

7. Bonacuse, P. J. and Kalluri, S., "Elevated Temperature Axial and Torsional Fatigue Behavior of Haynes 188", NASA TM-105396, AVSCOM TR 91-C-045, June 1992.
8. Bonacuse, P. J. and Kalluri, S., "Cyclic Axial-Torsional Deformation Behavior of a Cobalt-Base Superalloy," NASA-TM-106372; E-8182; NAS 1.15:106372; ARL-MR-113; Symposium on Cyclic Deformation, Fracture, and Non-Destructive Evaluation of Advanced Materials, Miami, FL, 16-17 Nov. 1992; Nov 1, 1992

## **1991**

9. Kalluri, S. and Bonacuse, P. J., "In-Phase and Out-of-Phase Axial-Torsional Fatigue Behavior of Haynes 188 at 760°C," NASA TM 105765, AVSCOM TR 91-C-46, October 1991.

## **1990**

10. Bonacuse, P. J. and Kalluri, S., "Axial-Torsional Fatigue: A Study of Tubular Specimen Thickness Effects," NASA TM-103637, AVSCOM TM 90-C-014, December 1990.

## **1989**

11. Kalluri, Sreeramesh and Bonacuse, Peter J., "A Data Acquisition and Control Program for Axial-Torsional Fatigue Testing," NASA-TM-102041; E-4790; NAS 1.15:102041; AVSCOM-TR-89-C-002; Symposium on the Applications of Automation Technology to Fatigue and Fracture Testing, Kansas City, MO, 22-23 May 1989; May 1, 1989

12. Bonacuse, P. J. and Kalluri, S., "Results of Inphase Axial-Torsional Fatigue Experiments on 304 Stainless Steel", NASA TM-101464, AVSCOM TR 88-C-022, March 1989.

### **Books/Monographs/Special Issues**

#### **2000**

1. Multiaxial Fatigue and Deformation: Testing and Prediction, ASTM STP-1387, S. Kalluri and P. J. Bonacuse, Eds., American Society for Testing and Materials, West Conshohocken, PA, Sept. 2000

#### **1997**

2. Multiaxial Fatigue and Deformation Testing Techniques, ASTM STP-1280, S. Kalluri and P. J. Bonacuse, editors, American Society for Testing and Materials, West Conshohocken, PA, Feb. 1997

### **Conference Proceedings and Presentations**

#### **2004**

1. Pete Bonacuse; Jack Telesman; Pete Kantzos; T. Gabb; R. Barrie; and Anthony Banik; "The Effect of Powder Cleanliness on the Fatigue Behavior of Powder Metallurgy Ni-Disk Alloy Udimet 720," presented at the 10th International Symposium on Superalloys sponsored by TMS, Sept. 19-23, 2004, Champion, PA., in Superalloys 2004, pp. 409-420
2. Jack Telesman; Pete Kantzos; John Gayda; P. J. Bonacuse; and Anthony Prescenzi; "Microstructural Variables Controlling Time-Dependent Crack Growth in a P/M Superalloy," presented at the 10th International Symposium on Superalloys sponsored by TMS, Sept. 19-23, 2004, Champion, PA., in Superalloys 2004, pp. 215-224
3. Gabb, T. P.; Telesman, J.; Kantzos, P. T.; Bonacuse, P. J.; Barrie, R. L.; and Hornbach, D., "Stress Relaxation in Powder Metallurgy Superalloy Disks," Powder Metallurgy Symposium 2004; 14-18 Mar., 2004; Charlotte, NC
4. Ghosn, M., Telesman, J., Bonacuse, P., Barrie, R., Ghosn, L., and Kantzos, P., "Probabilistic Fatigue Life Estimation of Seeded UDIMET 720 Superalloy Specimens," presented at 9th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, July 26-28, 2004, Albuquerque, NM.

#### **2003**

5. Kantzos, Pete T., Barrie, MAJ Robert L., Bonacuse, Peter J., Gabb, Timothy, and Telesman, I., "The Effects of Forging Strain on Ceramic Inclusions in a Disk Superalloy," presented at the conference on Advanced Materials and Processes For Gas Turbine Engines, Copper Mountain, CO, September 22, 2002, pp. 245-254. 2003.

6. Pete Bonacuse, Louis Ghosn, Jack Telesman, Pete Kantzos, Tim Gabb, and Rob Barrie, "Modeling the Distribution in Fatigue Life from Inclusion Initiated Failures in PM Superalloys," presented at the 6th Annual FAA/Air Force/NASA/Navy Workshop on the Application of Probabilistic Methods to Gas Turbine Engines, March 18–20, 2003, Solomon's Island, MD
7. P. T. Kantzos, R. Barrie, P. Bonacuse, J. Telesman, T. P. Gabb, "Effectiveness of Shot Peening in Suppressing Fatigue Cracking at Non-Metallic Inclusions in Udimet™ 720," presented at the 14th AeroMat Conference & Exposition, 9-12 June, 2003, Dayton, OH
8. Pete Kantzos, Pete Bonacuse, Louis Ghosn, Jack Telesman, Tim Gabb, and MAJ Rob Barrie, "Probabilistic Lifting Approach for P/M Ni Turbine Disks," presented at FAA 2003 Annual Rotor Integrity R, E&D Review, Aug. 12-14, 2003, Atlantic City, NJ.
9. Bonacuse, P. J. and Kalluri, S., "Damage Assessment of Combustion Devices," 5th International Symposium on Liquid Space Propulsion: Long Life Combustion Devices Technology, October 27-30, 2003, Chattanooga, TN
10. Louis J. Ghosn; Pete T. Kantzos; Robert L. Barrie; and Peter J. Bonacuse; "Unfolding the Ceramic Inclusion Size Distribution in a Powder Metallurgy Alloy from Planar Section," presented at TMS Materials Science and Technology 2003, Nov. 9-12, Chicago, IL.

## **2002**

11. Peter J. Bonacuse, Pete Kantzos, Jack Telesman, Timothy Gabb, and MAJ Robert Barrie, "Modeling Ceramic Inclusions in Powder Metallurgy Alloys," *Fatigue 2002*, Proceedings of the Eighth International Fatigue Congress, Stockholm, Sweden, June 2-7, 2002, Ed.: A. F. Blom, EMAS, West Midlands, U.K.
12. Bonacuse, Peter J.; Kantzos, Pete; and Telesman, Jack, "Ceramic Inclusions in Powder Metallurgy Disk Alloys: Characterization and Modeling," Fifth Annual FAA/Air Force/NASA/Navy Workshop on the Application of Probabilistic Methods for Gas Turbine Engines, Westlake, Ohio, June 11-13, 2001, NASA/CP-2002-211682, pp. 359-389.
13. Jack Telesman, Pete Kantzos, Pete Bonacuse, Louis Ghosn, Tim Gabb, and MAJ Rob Barrie, "Low Cycle Fatigue Behavior of Udimet 720 Superalloy Seeded with Alumina Inclusions," presented at the 2002 ASME International Mechanical Engineering Conference: Fatigue of High Temperature Materials, November 17, 2002, New Orleans, LA.

## **2001**

14. Bonacuse, P. J. and Kalluri, S., " Axial and Torsional Load-Type Sequencing in Cumulative Fatigue: Low Amplitude Followed by High Amplitude Loading," 6th International Conference on Biaxial/Multi-axial Fatigue and Fracture, Lisbon, Portugal, 25-28 June, 2001, Ed: de Freitas, M., Vol. 1, pp. 185-194.

## **2000**

15. Gabb, Timothy P.; Bonacuse, Peter J.; Ghosn, Louis J.; Sweeney, Joseph W.; Chatterjee, Amit; and Green, Kenneth A., "Assessment of Low Cycle Fatigue Behavior of Powder

Metallurgy Alloy U720,” presented at ASTM 31st National Symposium on Fatigue and Fracture Mechanics, June 22-24, 2000, Cleveland, OH

### **1999**

16. P. J. Bonacuse, L. J. Ghosn, J. Telesman, A. M. Calomino, and P. Kantzos, “Simulation of Crack Propagation In Engine Rotating Components Under Variable Amplitude Loading,” proceedings of the RTO Applied Vehicle Technology Panel (AVT) Symposium, Toulouse, France, 11-15 May, 1998, RTO-MP-8, Feb. 1999, pp. 38-1 – 38-8.
17. Kalluri, Sreeramesh and Bonacuse, Peter J., “Cumulative Axial and Torsional Fatigue: An Investigation of Load-Type Sequencing Effects,” presented at the ASTM Symposium on Multiaxial Fatigue and Deformation: Testing and Prediction, 19-20 May 1999, Seattle, WA.

### **1995**

18. P. J. Bonacuse and S. Kalluri, “Axial-Torsional, Thermomechanical Fatigue Behavior of Haynes 188 Superalloy,” presented at the 81st meeting of the AGARD Structures and Materials Panel, Banff, Alberta, Canada 2-4 October 1995, AGARD-CP-596, pp. 15-1 – 15-10.
19. Dr. Paul J. Laumakis and Peter J. Bonacuse, "Experimental Validation of an Analytical Composite Failure Model," 4th Annual ARL/USMA Technical Symposium (AUTS), United States Military Academy at West Point, NY, November 3, 1995.

### **1994**

20. S. Kalluri and P. Bonacuse, “Estimation of Fatigue Life under Axial-Torsional Loading,” Material Durability/Life Prediction Modeling: Materials for the 21st Century, PVP-Vol. 290, S. Y. Zamrik and G. R. Halford, eds., American Society of Mechanical Engineers, 1994, pp. 17-33.

### **1993**

21. Bonacuse, P. J. and Kalluri, S., "Fatigue Life Assessment under Multiaxial Loading," TTCP Engine Life Usage, Prediction, and Monitoring Workshop, Williamsburg, VA, April 6, 1993.

### **1992**

22. Bonacuse, P. J. and Kalluri, S., "Application of a Life Prediction Model For High Temperature Multiaxial Fatigue," Presented at the 5th Conference on Advanced Earth-to-Orbit Propulsion Technology, NASA Marshall Space Flight Center, Huntsville, Alabama, May 19-21, 1992.
23. Kalluri, S. and Bonacuse, P. J., "High Temperature Axial-Torsional Fatigue Testing: Tubular Specimen Design Issues," paper presented at the ASME Symposium on Experimental Methods for High Temperature Material Behavior Characterization, Scottsdale, Arizona, April 1992.

24. Bonacuse, P. J., "A Rule Based System for Estimating High Temperature Fatigue Life," International Symposium on Automation in Fatigue and Fracture Testing and Analysis, June 15-17, 1992, Paris, France
25. Bonacuse, P. J. and Kalluri, S., "Cyclic Axial-Torsional Deformation Behavior of a Cobalt-Base Superalloy," presented at the Second ASTM Symposium on Cyclic Deformation, Fracture, and Nondestructive Evaluation of Advanced Materials, Miami, Florida, November 16-17, 1992.

**1991**

26. Bonacuse, P.J., and Kalluri, S., "Axial and Torsional Fatigue of a Cobalt-Base Alloy," Structural Integrity and Durability of Reusable Space Propulsion Systems, NASA CP-10064, 1991, pp. 239-246, presented at the Structural Integrity and Durability of Reusable Space Propulsion Systems Conference, Cleveland, OH, 1991.